

### **REMARKS**

Claim 1 has been amended to recite an active method step. Claims 10 and 13 are amended in response to the rejection under 35 U.S.C. § 112, second paragraph, as discussed below. No new matter is added by this amendment.

#### **Rejection under 35 U.S.C. § 112, second paragraph**

Claims 10-11 and 13 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 has been amended to provide antecedent basis.

Claim 13 has been amended to remove indefiniteness.

In view of Applicants' amendments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

#### **Rejection under 35 U.S.C. § 103(a)**

Claims 1-14 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayami, et al. (EP 141 228) in view of Huang, et al. (November 1999) Chinese Journal of Catalysis 20 (6).

Hayami, et al. describe a process for producing 2,6 polychlorobenzonitrile by ammoxidation of toluene derivative having chlorine atoms at the 2,6-position with a gas containing ammonia and oxygen in vapor phase in the presence of a catalyst where bromine and/or a bromine-containing compound is added to the reaction system. The disclosure of Hayami, et al. does not teach all of the features of the claimed invention. For example, Hayami, et al. do not teach or suggest the use of water vapor in the process of ammoxidation.

Huang, et al. do not correct the deficiencies of Hayami, et al. The Office Action asserts that "Huang et al., teach the preparation of halogenated nitriles by ammoxidizing 2,6-dichlorotoluene in the presence of promoted VPO catalyst and water." (Office Action, page 5, paragraph 3). Applicants respectfully disagree with the Examiner's assertion. Huang, et al describe the ammoxidation of 2,6-dichlorotoluene on silica supported vanadium-phosphorus oxide catalyst. Huang, et al. do not teach the ammoxidation process in the presence of water. Water is only used for the preparation of the catalyst which is further calcinated before being

used in the ammoxidation process (Huang, et al., page 2/3, Experimental Section). Huang, et al. do not teach or suggest the use of water vapor in the process of ammoxidation.

Accordingly, the cited references taken as a whole do not teach or suggest the claimed invention.

Furthermore, the presently claimed invention provides an unexpected advantage over the prior art. As disclosed in the present specification at page 8, lines 14-16, "the addition of steam in the feed gas in a fixed proportion has a beneficial effect on the catalytic performance of a  $\text{VPCrO/TiO}_2$  catalyst (see also Tables 3 and 4)...". This feature is described further on page 8, line 32 to page 9, line 12 as reproduced below:

The invention provides a method wherein the dilution of organic substrate (2,6- DCT) with water is less than 40 moles, preferably less than 25 moles per each mole of 2,6-DCT fed.  $\text{H}_2\text{O}$  is generally added in the form of a liquid at room temperature but will be converted into vapour or steam in the preheating zone, whereby the latter is mixed with the feed gas in a fixed proportion. The presence of water vapour plays an important role in controlling the surface metal oxide structures. Moisture is able to interact with oxygen functionalities of the surface vanadia species via hydrogen-bonding. The presence of water vapour is expected to suppress the formation of total oxidation products by blocking the most active sites on vanadium oxide structures.

In contrast to the cited references, the specification specifically teaches the addition of water, converted to vapor or steam in the feed. Claim 1 specifically recites that the reaction is carried out by vapor phase ammoxidation, in the presence of water vapor.

The superior results obtained with the described method of the claimed invention are further illustrated in the Examples. See particularly Tables 1-4. Table 3, which is reproduced below, shows the influence of the presence of water vapor.

Table 3				
$\text{H}_2\text{O} / 2,6\text{-DCT}$ mole ratio	Conversion, % (2,6-DCT)	Yield, % (2,6-DCBN)	Selectivity, % (2,6-DCBN)	STY (g/kg.cat/h)
0	86.0	76.0	88.4	121.8
7	92.6	80.6	87.0	129.2
15	97.1	83.9	86.4	134.5
25	96.8	80.8	83.5	129.5

As can be seen from the data in Table 3, the addition of water vapor has a beneficial effect on the catalytic performance.

Accordingly, the combination of Hayami, et al. and Huang, et al. do not lead to the claimed invention. Neither of the cited references teach or suggest the use of water vapor during the ammoxidation process. Applicants respectfully submit that the combination of references does not teach or suggest the claimed invention.

Furthermore, the superior results obtained by the practice of the claimed method, as shown in the Examples of the specification, were unexpected and could not have been predicted from the cited prior art.

In view of Applicants' arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

#### **No Disclaimers or Disavowals**

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

#### **CONCLUSION**

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the

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application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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